

# Punic Glass from Carthaginian Settlement Excavations

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## Introduction

Excavations conducted by the University of Amsterdam on the Bir Messaouda site 2 in 2000 and 2001 yielded a total of 317 glass finds.<sup>1</sup> The study of these has been undertaken with the aim of preparing a basic manuscript.<sup>2</sup> As the publication scheme developed, it was decided to split the material in two parts. The first, short one, presented here focuses on finds of the Punic period.<sup>3</sup> The second, much larger part on the Roman till Medieval glass will be published on a later occasion.<sup>4</sup>

Although the number of glass finds in the 2000/2001 excavations to be attributed to the Punic period is not very impressive (only eight), the fact that up to this day so little Punic glass has been published from the settlement of Carthage makes this section probably the more interesting part of the two.<sup>5</sup> The eight Bir Messaouda fragments are discussed in the context of the 48 published items of Punic glass in Carthaginian settlement contexts to allow for statistically more relevant observations.<sup>6</sup> In the face of the very fragmentary state of the glass items, limited attention is paid to typology;<sup>7</sup> the focus lies on context and dating.

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<sup>1</sup> The campaigns 2000-2001 have been undertaken under the scientific direction of R.F. Docter; see Docter 2002, 2004a, 2004b and, for the final publication, Docter forthcoming. The University of Amsterdam excavations, which had been closely coordinated with the colleagues of Cambridge University, have been applying the transcription 'Bir Messaouda' for the Arab toponym. In the framework of the Tuniso-Belgian project of the INP (Tunis) and Ghent University at the same site, however, it has been preferred to use the transcription 'Bir Massouda'.

<sup>2</sup> The study of the glass finds was in the hands of J. Sonneveld. R. Docter studied the glass finds from elsewhere in the Carthaginian settlement and included the context information. S. van Lith (Amsterdam) is thanked for her kind help in making a selection of the glass fragments to be studied.

<sup>3</sup> Samples of the Punic glass vessels have been sent to J. Henderson (Nottingham) in order to analyse their compositions.

<sup>4</sup> Over the last decennia some important studies on Roman, Vandal and Byzantine glass from Carthaginian settlement excavations have been published: Hayes 1978; Tatton-Brown 1984; Hayes 1993; Tatton-Brown 1994; Fünfschilling 1999; Goldstein, Lindgren 2005; Schmidt 2007; Sterret-Krause 2009 (Vandal necropolis, but mostly from redeposited layers).

<sup>5</sup> Punic glass objects from the Carthaginian necropoleis, mainly stemming from old excavations, have been treated by M.H. Fantar (1972). Since then, scientific excavations in the necropoleis have yielded more glass objects, both vessels and beads. Especially in the latter case, the connection of these glass beads with ones in precious metals and stone is well attested, see Chelbi 1985, 91 (= *30 ans au service du patrimoine* 1986, 97, II.67); Lancel 1982d, 356-358, fig. 600. One fragment of a glass face bead is not considered, since its attribution to the settlement is uncertain, Seefried 1982, 108, 159, cat. C III.21, with references.

<sup>6</sup> The excavations of the German Archaeological Institute in Rome (DAI) in the settlement have yielded 7 more fragments of Punic glass vessels in sand core technique, which have been included in the statistics, Fünfschilling 1999, 441.

<sup>7</sup> For typology, see esp. Harden 1981 and Spanò Giammellaro 2008, with full and updated bibliography.

Especially the excavations of the University of Hamburg in the northern part of the Bir Messaouda terrain have given evidence for a large number of Punic glass fragments and items: K. Schmidt mentions no less than 23 items from Punic layers, which is more than a third of all 61 glass finds in that excavation (see below).<sup>8</sup> To this number one even has to add some clearly Punic glass items from more recent layers (residuals).<sup>9</sup> Ten of these glass fragments and beads stem from the Archaic/Early Punic layers IIa till IVc (c. 740-550 BC).<sup>10</sup> In the present contribution, we only discuss the 18 pieces that have been analysed and illustrated in the final publication.

### Punic glass from the Bir Messaouda excavations 2000/2001

#### **Glass paste vessels**

Cat. 1: BM00/12494 (context BM00/1121), 1 wall fragment of closed vessel (Fig. 1). Blue glass with white zigzag threads bordered (below?) by yellow line, pitted; preserved H 1.3 cm, th. 0.1 cm.

Context BM00/1121 is the fill on top of a street or an outdoor layer with mostly Early Punic material dating to the 7th and 6th centuries BC. It has probably been deposited in the transitional Early Punic/Middle Punic period, that is to say in the second half of the 6th or the first half of the 5th century BC. 35 diagnostic pottery fragments, out of a total of 261 (so 13.4%), have been studied in detail by R. Docter and will be published in the final publication (Docker forthcoming, cat. 1-35). The majority of these pottery fragments can be considered as residual: 21 fragments may be dated to the 7th and 6th centuries BC and 12 fragments to the second half of the 8th and the 7th century BC, 60% and 34% respectively. Only two fragments (6%) date to the time of deposition. The context contains 2 fragments of bellows' pipes (BM00/17470, BM00/38003) and some metal slag (BM00/38094), one unspecified stone and the fragment of core-formed glass presented here. Most of the pottery fragments are clearly water-rolled suggesting their exposure to constantly running water. The context is a fill on top of a walked street level or an outdoor surface, which could explain this state of preservation.

Cat. 2: BM00/12477 (context BM00/1106), 1 wall fragment of closed vessel (Fig. 2). Dull blue glass paste with white zigzag threads bordered (below?) by yellow (zigzag?) line, heavily pitted; diam. c. 4.0 cm, preserved H 1.6 cm, th. 0.2 cm.

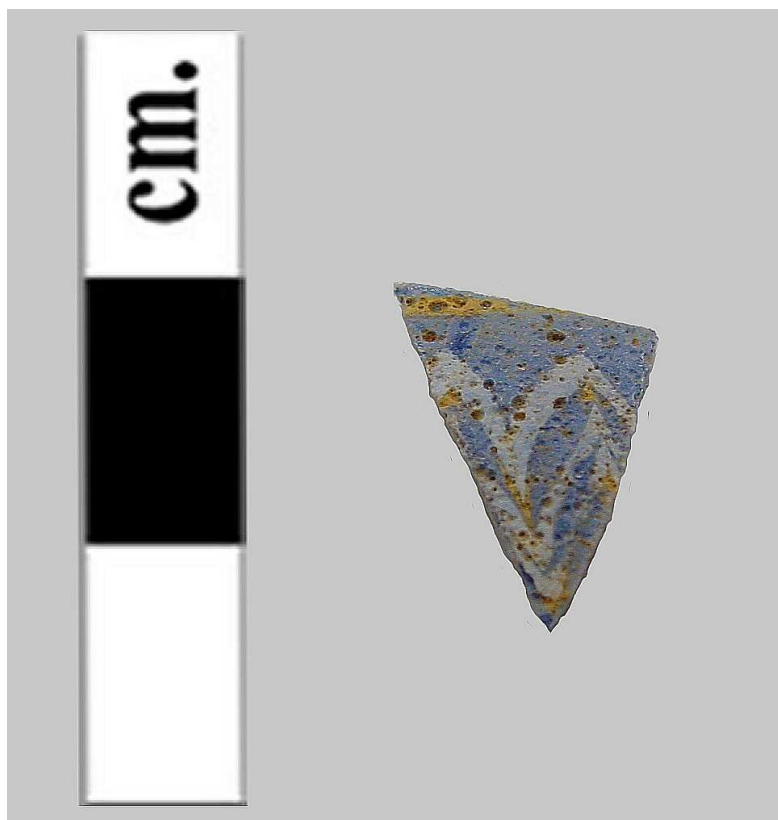
The context is a levelling layer containing only limited material. Apart from an unspecified stone and some metal slag, 21 pottery fragments were found, of which 4 diagnostic (19%). The analyses of these by B. Bechtold suggested both an early 7th century BC and a late 6th or early 5th century BC date (Bechtold forthcoming,

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<sup>8</sup> Schmidt 2007, 778-781, figs. 432-435, cat. 6301, 6310-6313, 6315-6316, 6320, 6322, 6325-6330.

<sup>9</sup> Schmidt 2007, 778-781, figs. 432, 434, cat. 6300, 6318-6319.

<sup>10</sup> For the dating scheme of the stratigraphy, see Niemeyer *et alii* 2007, 54-56, fig. 8. See also here, p. 22, in the contribution of Slopsma, van Wijngaarden-Bakker, Maliepaard.



**Fig. 1.** Carthage Bir Messaouda: Fragment of glass vessel **Cat. 1** (R.F. Docter / W. van de Put).



**Fig. 2.** Carthage Bir Messaouda: Fragment of glass vessel **Cat. 2** (R.F. Docter / W. van de Put).

cat. 745-748). The stratigraphical position, however, is more in favour of a later date, within the last quarter of the 5th century BC, that is to say the Middle Punic I period.

Cat. 3: BM00/12475 (context BM00/3085), 1 wall fragment of moulded closed vessel (Fig. 3). Greyish black glass paste with 4 yellow lines, heavily weathered; preserved H 2.5 cm, th. 0.4 cm. The context has been described in the field as a red levelling layer. The finds have not yet been fully studied, but an initial screening of the pottery and the stratigraphical position suggested an Early Roman date (Augustan-Tiberian). The finds are typical for Late Punic destruction layers of Carthage, reworked at the Roman re-foundation of the city: 29 fragments of Punic floors, 56 Late Punic wall plaster fragments, 1 basalt fragment, 1 worked bone fragment (BM00/10667), 1 bronze nail (BM00/30001), 1 bronze coin (BM00/12368)<sup>11</sup> and an uncounted number of pottery fragments. 1 brick and 2 tile fragments may perhaps be intrusive, stemming from the adjacent fill of a later robber trench. It is likely that the glass fragment has the same general date as the bulk of the contents of the context, that is to say the Late Punic period.

Cat. 4: BM00/12479 (context BM00/6056), 1 fragment of balsamarium (Fig. 4). White glass paste with wide yellow indented lines, heavily weathered; diam. 1.7 – 2.0 cm, preserved H 2.2 cm, th. 0.8 cm. Context BM00/6056 is also an Early Roman levelling layer (Augustan-Tiberian), containing primarily Late Punic material from the destruction of 146 BC. The inventory lists, besides the extremely numerous pottery fragments, 4 pieces of worked bone (BM00/10668-10671), 16 fishing weights,<sup>12</sup> 1 bronze coin (BM00/12369),<sup>13</sup> 3 iron nails (BM00/12642, 12644, 12650), 10 fragments of Punic floors, 202 fragments of Punic wall plaster, 32 (partly worked) stones and 1 terracotta fragment (BM00/10068). B. Bechtold, who analysed the 72 diagnostic pottery fragments, showed that 93.1% of these dated to the Late Punic period, (Bechtold forthcoming, cat. 1501-1594). Only one fragment dates to the Early Roman period and another one is residual, dating to the 4th century BC. Three, probably intrusive sherds date to the Middle Roman and Byzantine periods (3rd – mid-6th century AD). Also here, one may surmise that the glass fragment dates to the Late Punic period.

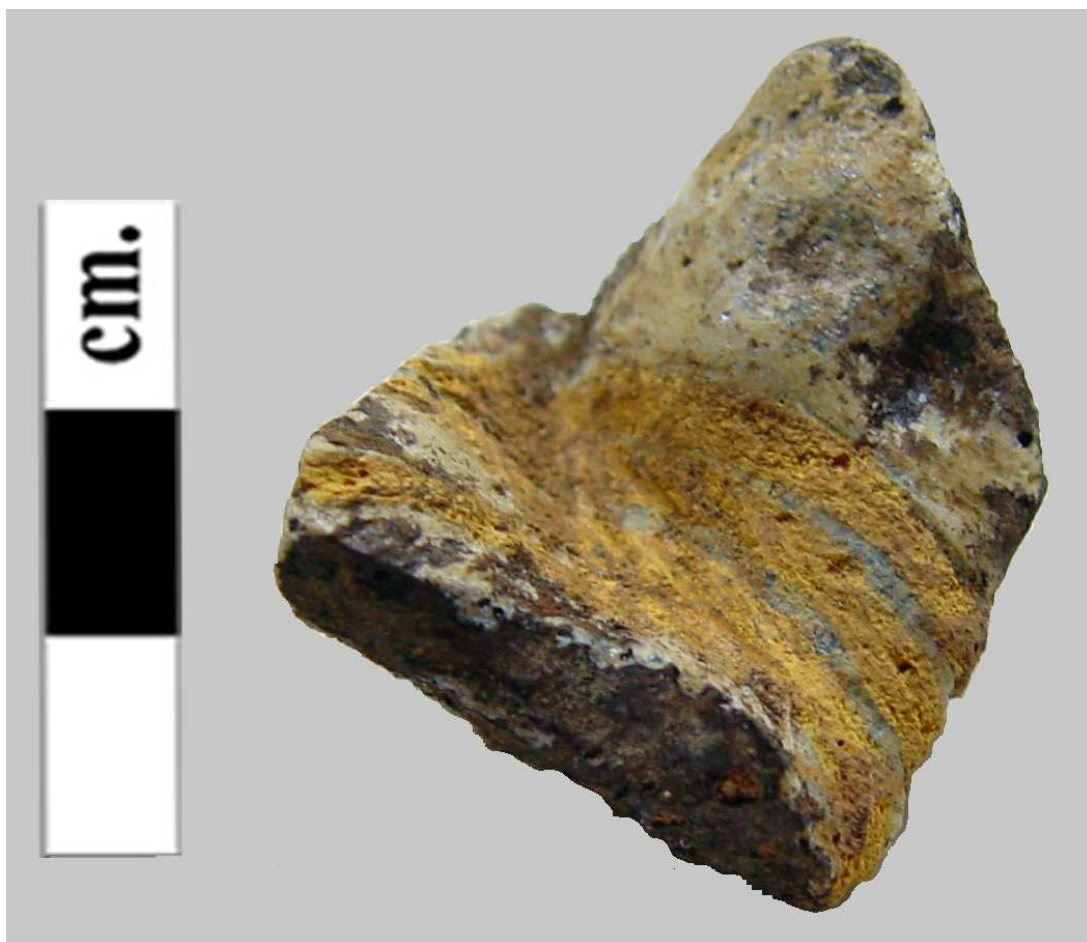
A comparable fragment has recently been published from Motya, where it has been interpreted as a rather long bead, so part of a necklace (Spanò Giammellaro 2008, 121, cat. 71, pl. XIV,71).

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<sup>11</sup> All coins found during the 2000 and 2001 campaigns had been handed over to Dr. L. Rahmouni (Tunis) for restauration and publication. The study has, however, still not been concluded.

<sup>12</sup> BM00/10041-10042, 10044-10046, 10062, 10065-10067, 10069-10073, 10077, 10099.

<sup>13</sup> See above, n. 11.



**Fig. 3.** Carthage Bir Messaouda: Fragment of glass vessel **Cat. 3** (R.F. Docter / W. van de Put).



**Fig. 4.** Carthage Bir Messaouda: Fragment of glass vessel **Cat. 4** (R.F. Docter / W. van de Put).

## Beads

Cat. 5: BM00/12467 (context BM00/1108), 1 half of a cylindrical bead (Fig. 5).

Colour not tangible, metallic milky enamel-like weathering; diam. 1.4 cm.

The context has been excavated as a very compact levelling layer below a Punic pavement. Stratigraphically and on the basis of the pottery analysis, the context is dated to the second half of the 5th century BC, so the Middle Punic II.1 period. The context contained 118 pottery fragments, a fragment of a worked stone and a bronze fragment (BM00/30003). The 12 diagnostic pottery fragments (10.2%) have been analysed by B. Bechtold (Bechtold forthcoming, cat. 789-800).

Cat. 6: BM00/12482 (context BM00/7062), 1 cylindrical bead (Fig. 6).

Bluish glass, pitted, milky enamel-like weathering; diam. 1.2 cm.

The context has been excavated as a yellow levelling layer below Late Punic pavement BM00/7058+7059; it contained pottery, many disintegrated mudbrick fragments, one pavement fragment and 1 stone. The pottery contents have not been analysed yet, so that the precise chronology of the context, and hence the glass bead, has to be left open. It is at least Late Punic, but given the fact that the pottery contents of the overlying pavement BM00/7058+7059 are homogeneously late 5th and 4th century BC in date (Middle Punic II.2 period), one may perhaps go for an earlier date as well (see below **Cat. 8**).<sup>14</sup>

A general comparison for the type of bead can be found in the publication of the glass from the Avenue du Président Habib Bourguiba site (Tatton-Brown 1984, 209, fig. 69,112), although this one is dated much later. A blue glass bead recently published from Motya is closer in time (Toti 2002c, 339, cat./pl. 3).

Cat. 7: BM00/12497 (context BM00/8057), 1 cylindrical bead (Fig. 7).

Original glass colour not visible, heavily pitted, dull-pitted weathering; diam. 1.0 cm.

The context is a levelling layer below a Late Punic pavement. It contained 2 bronze fragments (BM00/10174-10175), 1 bronze coin (BM00/12357),<sup>15</sup> 1 unspecified stone and 112 pottery fragments. B. Bechtold's analysis of the 12 diagnostic pottery fragments (10.7%) shows a rather homogeneous date in the second and third quarters of the 5th century BC (Middle Punic I), with few residuals of the transitional Early Punic/Middle Punic period (Bechtold forthcoming, cat. 869-880).

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<sup>14</sup> This needs, however, not necessarily be the case, since for the preparation of the pavement mortar earlier material may have been included.

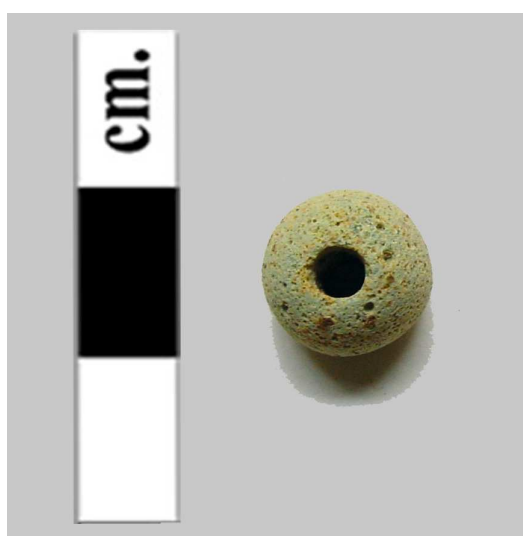
<sup>15</sup> See above, n. 11.



**Fig. 5.** Carthage Bir Messaouda: Glass bead **Cat. 5** (R.F. Docter / W. van de Put).



**Fig. 6.** Carthage Bir Messaouda: Glass bead **Cat. 6** (R.F. Docter / W. van de Put).



**Fig. 7.** Carthage Bir Messaouda: Glass bead **Cat. 7** (R.F. Docter / W. van de Put).



## Waster

Cat. 8: BM00/12469 (context BM00/7059), 1 tear-shaped glass drip (Fig. 8).

Green glass, pitted, surface weathered; preserved H 1.6 cm.

The glass drip is of some interest, since it is probably a waster, hinting at the presence of a glass working atelier in the area. Context BM00/7059 is the pottery collected while removing Punic pavement BM00/7058. B. Bechtold dates the 13 diagnostic pottery fragments in it (4.4% of total) exclusively to the late 5th and 4th century BC, that is to say the Middle Punic II.2 period (Bechtold forthcoming, cat. 933-945), although the stratigraphical position suggests a Late Punic date. The find of one bronze coin in the context (BM00/12362) may perhaps refine the date, but the study of it has not yet been concluded.<sup>16</sup> B. Bechtold's analysis shows that the majority of the 295 undiagnostic wall fragments had traces of secondary burning. Moreover, the context contained some slag material. This may either hint at the fact that the whole assemblage originates in an area where it had been exposed to high temperatures (viz. a glass workshop) or, alternatively, that **Cat. 8** is a glass fragment melted to this shape only secondarily. Also the excavations of the University of Hamburg below the Decumanus Maximus have given evidence for glass wasters and so for the production of glass in Carthage in a context of 'Stratum VIa1', which is dated to c. 480-425 BC: 6 drips of greenish-grey glass (see below, **Cat. 40**).



**Fig. 8.** Carthage Bir Messaouda: Glass drip, waster **Cat. 8** (R.F. Docter / W. van de Put).

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<sup>16</sup> See above, n. 11.



## Punic glass from other settlement excavations

### **Glass paste vessels (Fig. 9)<sup>17</sup>**

Cat. 9. Fragment of core glass balsamarium in white, yellow and light brown zigzags. Max. diam. 1.5 cm, preserved H 8 cm (Fig. 9).

Publication: Lancel 1982e, 120-121, fig. 146: A.176.23; Docter 2007, 68, context 291.

The rod-shaped piece was found in a context of the second quarter of the 2nd century BC on the Byrsa hill.

Cat. 10. Small fragment of a blue glass paste vessel with turquoise overlay.

Publication: Vegas 1987, 394; Docter 2007, 60, context 178.

The not illustrated fragment stems from context K85/20 of the first half of the 4th century BC in the Punic “Seetor-Straße”.

Cat. 11. Wall fragment of a glass paste balsamarium.

Publication: Vegas 1987, 396-398; Docter 2007, 60, context 174.

The not illustrated fragment was found in context K85/21 of around 400 BC in the Punic “Seetor-Straße”, together with **Cat. 25**.

Cat. 12. Wall fragment of small flask in cobalt blue, light blue and yellow glass.

Publication: M. Vegas in: Rakob 1991, 40, cat. 97; Docter 2007, 63, context 203.

The not illustrated fragment stems from context K78/40 of the late 4th - 3rd century BC in the Magon Quarter.

Cat. 13. Neck/shoulder fragment with lower handle root of amphoriskos in blue glass with yellow-opaque lines (sand core technique). Preserved H 1.8 cm (Fig. 9).

Publication: Fünfschilling 1999, 440-441, 443, cat. 1, note 38, fig. 2,1.

The fragment was found in context K80/199 in the Magon Quarter together with Punic pottery.

Cat. 14. Wall fragment of flacon in blue glass with white-yellowish lines and indents (sand core technique). Preserved H 1.6 cm (Fig. 9).

Publication: Fünfschilling 1999, 440, 443, fig. 2,2.

The vessel fragment stems from a context (“K80 CD4-6D5d W, Rg1 ab -365cm”) in the Magon Quarter, containing at least some Punic material.

Cat. 15. Wall fragment of balsamarium in blue-opaque glass with white zigzags (sand core technique), worn. Preserved H 1.8 cm (Fig. 9).

Publication: Fünfschilling 1999, 440, 443, fig. 2,3.

The fragment stems from context K77/157 of the Late Punic period (?) in the Magon Quarter.

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<sup>17</sup> See above, n. 6.

Cat. 16. Neck of a balsamarium with transition to neck in yellow-green glass with lines in an indefinable colour (sand core technique). Preserved H 2.4 cm (Fig. 9).

Publication: Fünfschilling 1999, 440-441, 443, note 38, fig. 2,4.

The piece was found in context K77/332 of the Late Punic - Early Roman period in the Magon Quarter.

Cat. 17. Wall fragment of alabastron in blue glass with yellow-opaque and turquoise zigzags (sand core technique). Preserved H 1.9 cm (Fig. 9).

Publication: Fünfschilling 1999, 440, pl. 43,5.

The fragment was found in a context ("K79, 6/0, MS79B aus Rg 3") in the Magon Quarter, containing at least some Punic material.

Cat. 18. Wall fragment of core-formed glass vessel.

Publication: Fünfschilling 1999, 441, note 38.

The not illustrated fragment was found in the Magon Quarter in context K78/261 of the Early Roman period, which contained (almost exclusively?) material dating to the 4th century BC at the latest.

Cat. 19. Wall fragment of balsamarium in indefinable coloured glass and with decoration in the form of garlands (sand core technique). Preserved H 2.8 cm (Fig. 9).

Publication: Fünfschilling 1999, 441, 504, pl. 43,574.

The piece was excavated in context K92/128 of the Late Punic - Early Roman period in the Rue Ibn Chabâat.

Cat. 20. Wall fragment of balsamarium in indefinable coloured glass and with decoration in the form of feathers (sand core technique). Preserved H 2.9 cm (Fig. 9).

Publication: Fünfschilling 1999, 441, 504, pl. 43,575.

The fragment stems from context K92/128 of the Late Punic - Early Roman period in the Rue Ibn Chabâat.

Cat. 21. Fragment of a yellowish core-formed glass vessel with brown line. Dimensions 1.6 x 1.1 cm, th. 0.2 cm (Fig. 9).

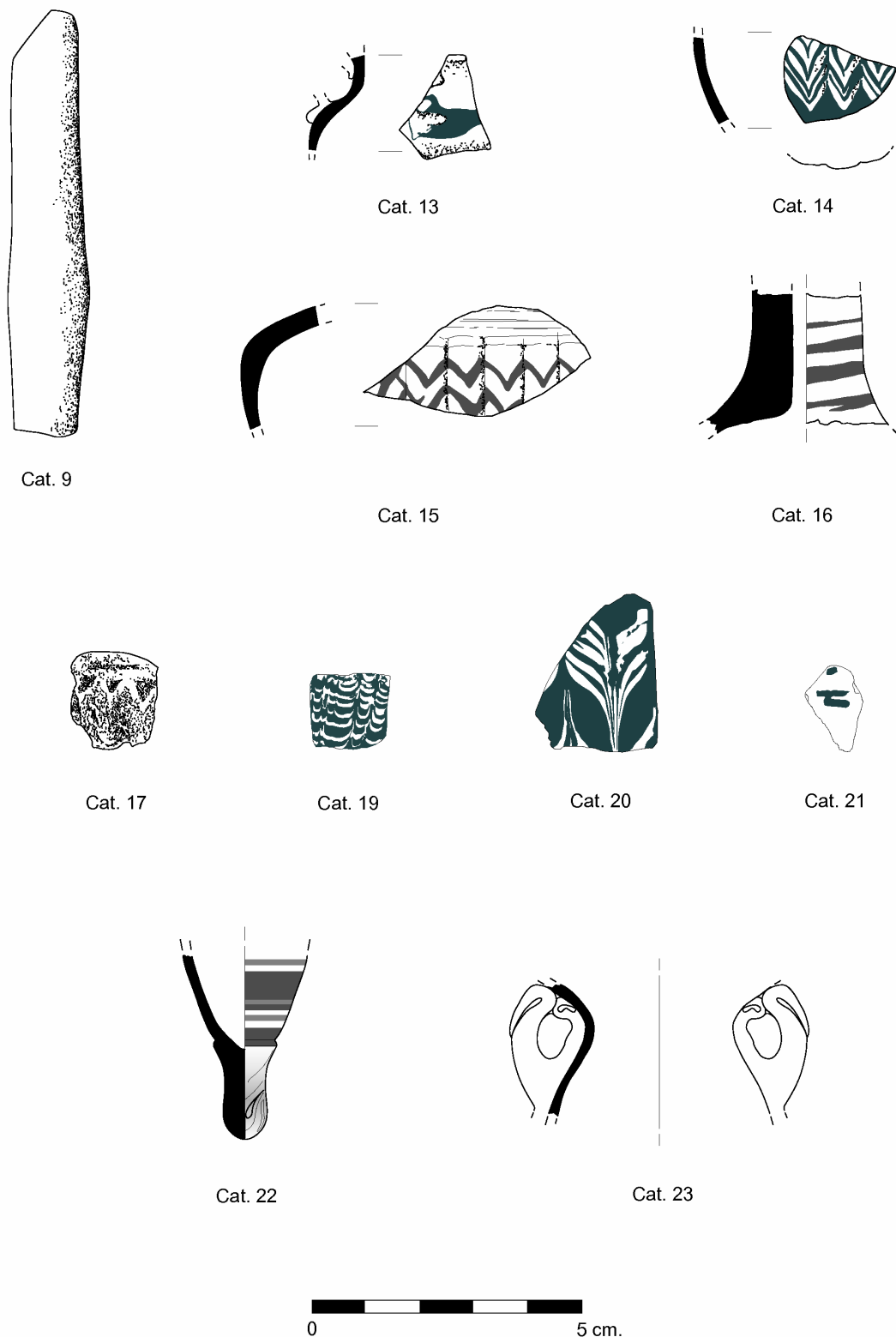
Publication: T. Redissi, in: Docter *et alii* 2006, 66, cat. 54, fig. 42b; Docter 2007, 61, context 192 (BM04/7453).

The fragment was found together with **Cat. 26** in the fill of a septic pit at the Bir Messaouda site. B. Maraoui Telmini, who published the pottery contents, established a date of 360-340 BC for the bulk of the finds, with some residuals of the late 5th and early 4th century BC.

Cat. 22. Base fragment of a core-formed opaque blue glass amphoriskos with greenish-blue, light yellow and yellow lines. Preserved H 3.4 cm (Fig. 9).

Publication: Schmidt 2007, 778-780, fig. 432, cat. 6300.

Found in the Hamburg excavations below the Decumanus Maximus (north part of Bir Messaouda site) in context KA 88/38 that has been disturbed in Roman times.



**Fig. 9.** Carthage: Glass paste vessels, **Cat. 9** (after Lancel 1982e, fig. 146), **Cat. 13-17, 19-20** (after Fünfschilling 1999, fig. 2,1-4, pls. 43,5, 43,574-575), **Cat. 21** (after T. Redissi in: Docter *et alii* 2006, fig. 42b), **Cat. 22-23** (after Schmidt 2007, fig. 432,6300-6301).

Cat. 23. Handle fragment of a core-formed translucent greenish glass amphoriskos. Preserved H 2.3 cm.

Publication: Schmidt 2007, 778-780, fig. 432, cat. 6301 (Fig. 9).

Found in the Hamburg excavations below the Decumanus Maximus (north part of Bir Messaouda site) in context KA 93/104, belonging to a street layer of 'Stratum VIIIa1', dated to c. 250-146 BC.

### **Beads (Figs. 10-11)**

Cat. 24. 5 ring shaped blue, yellow and green glass paste beads. Diam. ranging from 0.7 to 1 cm (Fig. 10).

Publication: Lancel, Thuillier 1979, 224, fig. 74, A.151.4; Docter 2007, 67, context 285.

The five beads were found in context G II 9/13 (A.151) on the Byrsa hill, in a context dated to the second quarter of the 2nd century BC.

Cat. 25. Fragment of a "Tonrohr" ('pottery tube') with applied 'eye' decoration of dark blue and white glass paste. Preserved H 3 cm (Fig. 10).

Publication: Vegas 1987, 396-398, fig. 8,154; Docter 2007, 60, context 174.

Together with **Cat. 11**, this fragment was found in context K85/21 of around 400 BC in the Punic "Seetor-Straße". The piece is probably to be interpreted as a fragment of a cylindrical core-formed glass bead ('eye bead'), although M. Vegas considers it to be part of an anthropomorphic figurine.

Cat. 26. Yellowish white opaque glass bead. Diam. 0.3 cm, th. 0.2 cm (Fig. 10).

Publication: T. Redissi, in: Docter *et alii* 2006, 63, 65-66, cat. 53, figs. 33b, 42a; Docter 2007, 61, context 192 (BM04/7453).

The bead was found together with **Cat. 21** in the fill of a septic pit at the Bir Messaouda site. B. Maraoui Telmini, who published the pottery contents, established a date of 360-340 BC for the bulk of the finds, with some residuals of the late 5th and early 4th century BC.

Cat. 27. Green eye bead with blue glass paste eyes. Diam. 0.6 cm, H. 0.4 cm (Fig. 10).

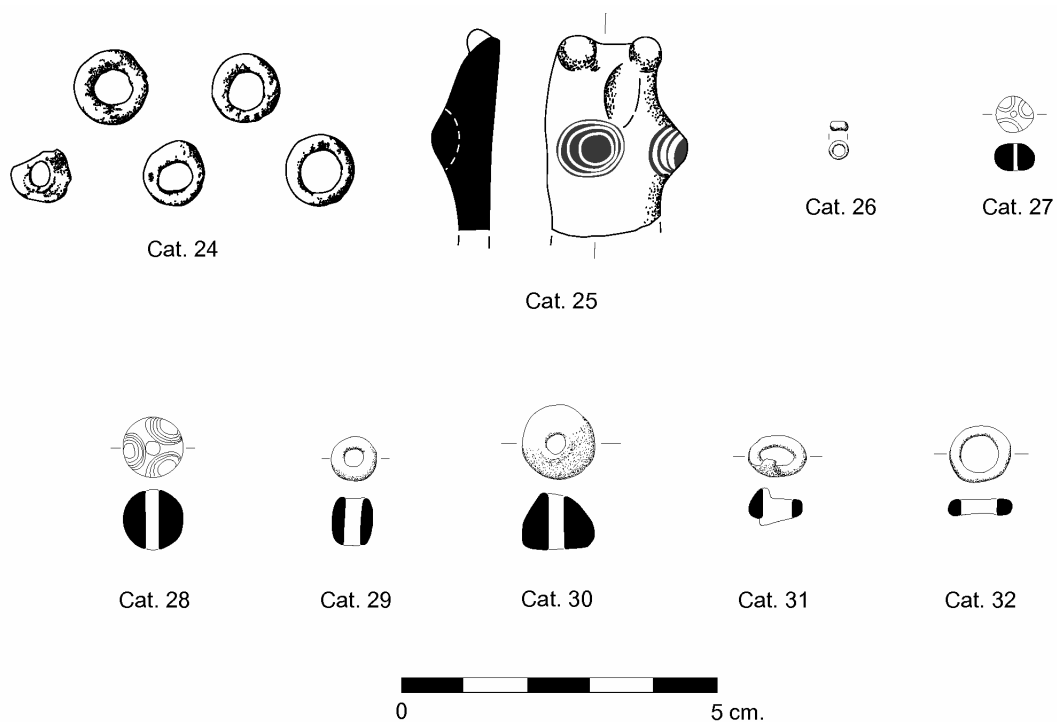
Publication: Schmidt 2007, 778, 781, fig. 433, cat. 6310.

Found in the Hamburg excavations below the Decumanus Maximus (north part of Bir Messaouda site) in context KA 91/162 of 'Stratum IV-2c1'. This context is dated to c. 600-550 BC, but contains material of 'Stratum IV-2b1' (c. 645-600 BC).

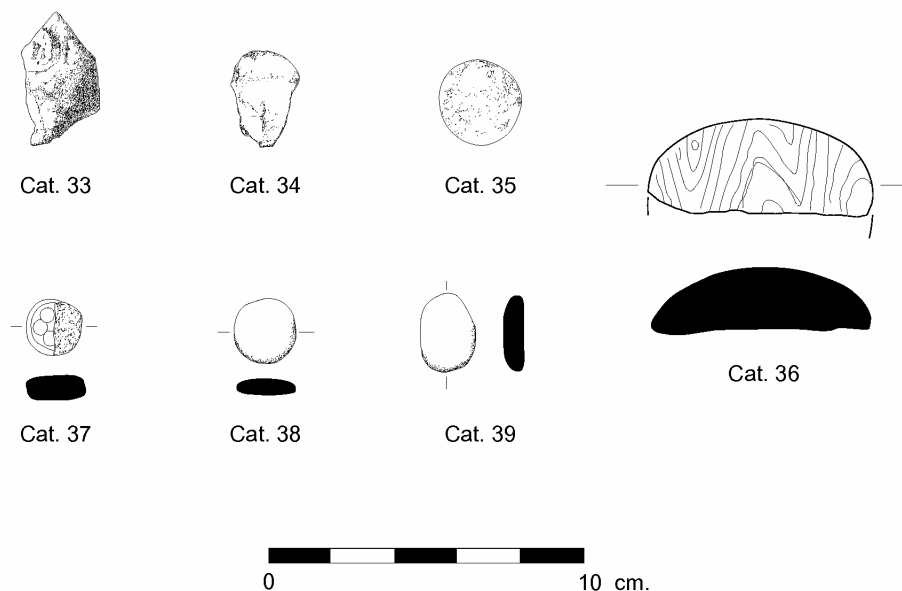
Cat. 28. Green eye bead with blue glass paste eyes. Diam. 0.9 cm (Fig. 10).

Publication: Schmidt 2007, 778, 781, fig. 433, cat. 6311.

Found in the Hamburg excavations below the Decumanus Maximus (north part of Bir Messaouda site) in context KA 91/134, belonging to a street layer of 'Stratum VIIIa1', dated to c. 250-146 BC.



**Fig. 10.** Carthage: Glass beads, **Cat. 24** (after Lancel, Thuillier 1979, fig. 74), **Cat. 25** (after Vegas 1987, fig. 8,154), **Cat. 26** (after T. Redissi in: Docter *et alii* 2006, fig. 33b), **Cat. 27-32** (after Schmidt 2007, fig. 433,6310-6313, 6315-6316).



**Fig. 11.** Carthage: Glass bead **Cat. 33** (after Goldstein, Lindgren 2005, fig. 9.12,89). Various glass objects, **Cat. 34-35** (after Lancel 1982b, fig. 71), **Cat. 36-39** (after Schmidt 2007, fig. 434,6318-6320, 6322).

Cat. 29. Cylindrical opaque white glass bead with small indents on the surface. Diam. 0.7 cm, H 0.7 cm (Fig. 10).

Publication: Schmidt 2007, 778, 781, fig. 433, cat. 6312; Docter 2007, 57-58, context 147.

Found in the Hamburg excavations below the Decumanus Maximus (north part of Bir Messaouda site) in context KA 91/219 of the last quarter of the 5th century BC. It was found together with **Cat. 30**. The context is generally assigned to 'Stratum VII-5a1', dated to 425-350 BC.

Cat. 30. Conical greenish translucent glass bead with many small indents on surface. Diam. 1.1 cm, H 0.8 cm (Fig. 10).

Publication: Schmidt 2007, 778, 781, fig. 433, cat. 6313; Docter 2007, 57-58, context 147.

Found in the Hamburg excavations below the Decumanus Maximus (north part of Bir Messaouda site) in context KA 91/219 of the last quarter of the 5th century BC. It was found together with **Cat. 29**. The context is generally assigned to 'Stratum VII-5a1', dated to 425-350 BC.

Cat. 31. Ring shaped bluish translucent glass bead. Diam. 0.3-0.9 cm (Fig. 10).

Publication: Schmidt 2007, 778, 781, fig. 433, cat. 6315.

Found in the Hamburg excavations below the Decumanus Maximus (north part of Bir Messaouda site) in context KA 91/122 of 'Stratum II-2b1', which is generally dated to the last quarter of the 8th century BC.

Cat. 32. Ring shaped bluish translucent glass bead. Diam. 0.9 cm (Fig. 10).

Publication: Schmidt 2007, 778, 781, fig. 433, cat. 6316.

Found in the Hamburg excavations below the Decumanus Maximus (north part of Bir Messaouda site) in context KA 87/153 of 'Stratum VIII-1a1', which is generally dated to c. 250-146 BC.

Cat. 33. Fragment of head bead or pendant in deep blue glass ("possibly one-third of face preserved with eye and an applied single yellow decorative dot left in relief"). Preserved H 2.1 cm (Fig. 11).

Publication: Goldstein, Lindgren 2005, 448, fig. 9.12,89.

The fragment comes from the excavations in the Bir Ftouha pilgrimage church. The area cannot be considered as the Punic settlement proper, but is nevertheless included here, since it neither seems to have been an area of Punic necropoleis. It may perhaps be a residual piece stemming from a semi-urban/semi-rural zone at the fringes of Carthage.

## Various (Fig. 11)

Cat. 34. Small male head in glass paste. H 1.5 cm (fig. 11).

Publication: Lancel 1982b, 60, fig. 71: A.159.23; Docter 2007, 64, context 209.

The anthropomorphic glass head was found in the fill of a street drain on the Byrsa hill, together with **Cat. 35**. The material in it is dated to the 3rd century BC with some residual material of the end of the 5th and the 4th century BC.

Cat. 35. Small disk (“ménisque”) in glass paste. Diam. 1.4 cm (Fig. 11).

Publication: Lancel 1982b, 60, fig. 71: A.159.24; Docter 2007, 64, context 209.

The disk was found in the fill of a street drain on the Byrsa hill, together with **Cat. 34**. The material in it is dated to the 3rd century BC with some residual material of the end of the 5th and the 4th century BC.

Cat. 36. 1 fragment of polychrome (turquoise, blue and yellow) glass paste disk of oval shape with silver shine on surface. Diam. 3.5 cm, H 0.9 cm (Fig. 11).

Publication: Schmidt 2007, 778, 781, fig. 434, cat. 6318.

Found in the Hamburg excavations below the Decumanus Maximus (north part of Bir Messaouda site) in context KA 94/504 in an Early Roman layer containing mainly Late Punic material.

Cat. 37. Round black glass disk with red circles. Diam. 0.9 cm, H 0.4 cm (Fig. 11).

Publication: Schmidt 2007, 778, 781, fig. 434, cat. 6319.

Found in the Hamburg excavations below the Decumanus Maximus (north part of Bir Messaouda site) in context KA 91/231, which had been disturbed in Roman times. It is unsure whether it is of Punic date, though.

Cat. 38. Round opaque grey glass disk. Diam. 1.0 cm, H 0.3 cm (Fig. 11).

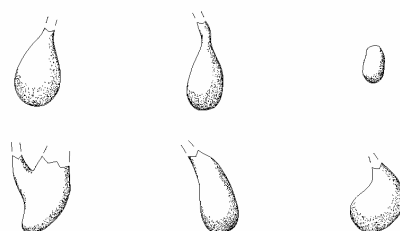
Publication: Schmidt 2007, 778, 781, fig. 434, cat. 6320.

Found in the Hamburg excavations below the Decumanus Maximus (north part of Bir Messaouda site) in context KA 88/110 of ‘Stratum VII-1b1’, which is generally dated to c. 350-250 BC.

Cat. 39. Oval opaque white glass disk. Max. L. 1.2 cm, H 0.3 cm (Fig. 11).

Publication: Schmidt 2007, 778, 781, fig. 434, cat. 6322; Docter 2007, 52-53, context 104a.

Found in the Hamburg excavations below the Decumanus Maximus (north part of Bir Messaouda site) in context KA 91/174 of ‘Stratum IV-2b1’. The stratum is generally dated to 645-600 BC, but in this case perhaps even more closely between c. 645 and c. 630 BC.



Cat. 40



**Fig. 12.** Carthage: Glass drips, wasters, **Cat. 40** (after Schmidt 2007, fig. 435,6325-6330).



## Wasters (Fig. 12)

Cat. 40. 6 drips of greenish-grey glass. Diam. 0.6-1.4 cm (Fig. 12).

Publication: Schmidt 2007, 778, 781, fig. 435, cat. 6325-6330.

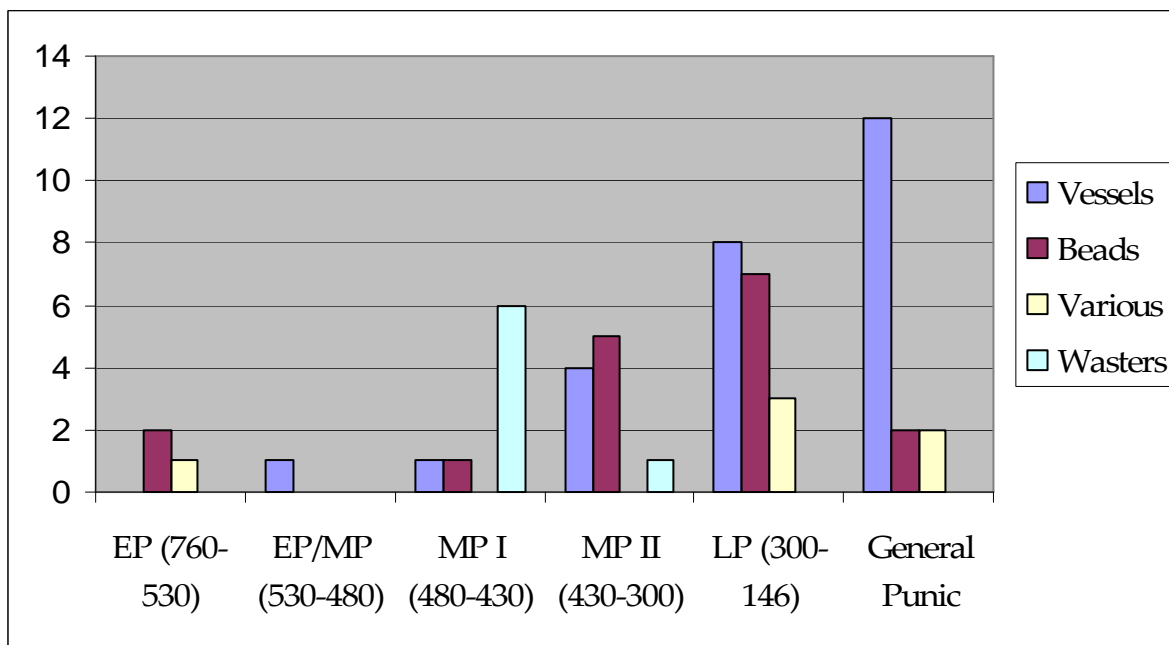
Found in the Hamburg excavations below the Decumanus Maximus (north part of Bir Messaouda site) in context KA 88/105 of 'Stratum VIa1', which is dated to c. 480-425 BC. K. Schmidt even considers this material to be residual in the context, originating in the preceding phase V (c. 550-480 BC).

This find is of interest in two respects. In the first place, the shape of the drips is closely comparable to that of **Cat. 8**, above, strengthening the interpretation of these glass drips as wasters. In the second place, the Hamburg DM finds may then be considered the earliest secured evidence for the production of glass in Carthage (see Fig. 13), which is in line with the hitherto assumed starting date for such a production in the Central and Western Mediterranean (e.g. Uberti 1988, 474).

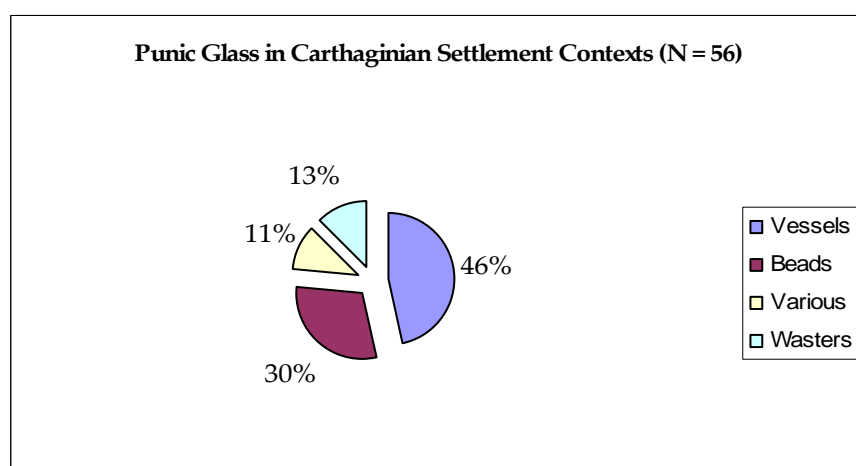
## Conclusions

In general, one may conclude that the numbers of Punic glass in the settlement are extremely low. One can hardly suspect that this is due to a publication backlog, since especially more 'fancy' finds as coreformed glass and beads tend to find their way into archaeological (preliminary) reports. Most excavation projects working in the Carthaginian settlement over the last three decades have published more or less representative selections of their Punic glass finds. Still, not all excavations that reached Punic layers yielded glass. In none of the 31 Late Punic contexts in the British excavations on the north side of the Circular Harbour glass was found (Tatton-Brown 1994, 208). If one starts from the 315 published settlement contexts of the Punic period known in 2007 (Docter 2007), one sees that only eight of these contained glass, that is to say no more than 2.5%. In view of this rareness of Punic glass, it is therefore remarkable that no less than six contexts yielded more than one glass item (see **Cat. 11, 21, 24-26, 29-30, 34-35, 40**). This suggests that glass was perhaps not that infrequent in the settlement. The low numbers or even absence of glass in the archaeological record is therefore probably to be explained by factors like rubbish disposal (Docter 2005; Docter 2007, 42) and intentional sorting for recycling. It is perhaps not surprising that the glass fragments encountered in settlement contexts are mostly very small, so as if they had escaped the deliberate recycling process. The fact that, at least in the Bir Messaouda sample, the glass fragments are not infrequently found in association with coins (half of the cases: **Cat. 3-4, 7-8**), may also be telling in this respect.

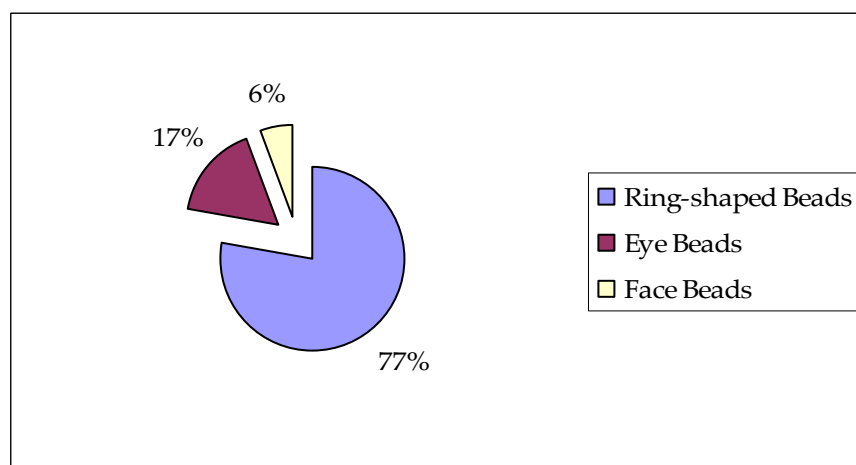
The main occurrence of glass finds in Punic Carthage falls in the Middle Punic II and the Late Punic period, that is to say the last 30 years of the 5th till the 2nd century BC (Fig. 13). This picture is certainly biased, since the publication record of Carthage shows a kind of hiatus in the period 530-480 BC, that is to say more or less the transitional Early Punic/Middle Punic period (Docter 2007, 42-43, figs. 3-



**Fig. 13.** Carthage: Chronological distribution of the Punic glass finds from settlement contexts by category (N = 56).



**Fig. 14.** Carthage: Distribution of the Punic glass finds from settlement contexts (N = 56).



**Fig. 15.** Carthage: Punic glass beads from settlement contexts (N = 18).

4). Still, some chronological observations may be made. Glass vessels are first encountered in the transitional Early Punic/Middle Punic period (**Cat. 1**, Figs. 1, 13). The first glass objects to appear in the settlement stratigraphy are two beads (**Cat. 27, 31**, Figs. 10, 13), dating to the second half of the 7th and the last quarter of the 8th century BC, respectively, as well as a white glass disk found in a context of c. 645-630 BC (**Cat. 39**, Figs. 11, 13). Whether these objects had been imported or were already produced on site, has to remain a question of speculation. The first sound evidence for local glass production is formed by the drips (wasters) found in the Middle Punic I and II period (**Cat. 8, 40**, Figs. 8, 12-13). The start of glass production in Carthage may, hence, be placed in the decades between 480 and 425 BC, if not earlier.

Less than half of the glass finds in the Carthaginian settlement consist of fragments of glass vessels (Fig. 14). Glass beads make up for about a third of the sample, but this may be a matter of bias. Finds of beads in the settlement are almost only the result of systematic sieving procedures during excavation. This holds for the excavations of the University of Hamburg, the Amsterdam excavations of 2000 and 2001, and the Ghent University/INP excavations of 2002-2005. The present sample of beads (18 pieces; see Fig. 15) shows an absolute predominance of simple ring-shaped types. For Carthage and other Phoenician/Punic sites in the Mediterranean, this had already been signalled by T. Redissi. The statistics offered for the pre-Roman glass beads in the Museum of Ibiza and Formentera is also illuminating: 57.54% of all beads are of the plain ring-shaped version (Ruano Ruiz 1996, 43, 46, table 3).

In the recent publication of habitation areas in the Punic settlement of Motya the only glass objects mentioned were beads (Toti 2002); apparently no glass vessels were encountered, which at first sight seems to be in striking contrast with Carthage. However, it may well be that the chance factor influences the picture, since the recent excavations in the area of the cothon of Motya did yield two fragments of Punic glass vessels (unguentaria) of the late 5th and 4th century BC.<sup>18</sup> Also the excavations in the tophet of Motya yielded at least one fragment of a glass vessel (Ciasca 1969, 46, pl. LVIII,2). The recent publication of the Punic glass in the Whitaker collection, coming from the necropoleis of Motya (but also Birgi and Lilybaeum), shows that both vessels and beads are well represented (Spanò Giammellaro 2008). So, when discussing the glass repertoire in a given Punic site, all functional contexts should be considered. For Carthage the picture of glass from funerary contexts had already been fairly well known.<sup>19</sup> The present contribution aims to have added the view from the habitation.

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<sup>18</sup> Nigro 2005, 25, fig. 2.9a-b, pl. VI, MC.03.4, MC.03.241, from US.602 and US.603.

<sup>19</sup> Fantar 1972; Seefried 1982, especially 159; T. Redissi, in: Docter *et alii* 2006, 65-66, 84, n. 170. See also above, n. 5.

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